

or minutely striated. Colour yellowish-olive, painted more or less with wavy, dark brown longitudinal lines. Aperture pinkish-white, occasionally having the outer lip dotted with dark pink-brown marks.

Hab. Same as *P. sulcatus*.

This is a rare shell, if really distinct from *sulcatus*, from which and from *regalis* it may at once be distinguished by the shallowness and irregularity of the ridges.

ANCULOTUS CARINATUS, Layard.

Shell somewhat globose; axis 5 lines, diam. 4 lines. Spire exerted, short. Whorls inflated, rather square, sharply keeled round the inferior angle, minutely longitudinally striated. Colour dull olive, marked faintly with two or three broad bands of dark rufous-brown, which are very apparent in the aperture; columellar lip white, stained with a light dash of the same rufous-brown on the exterior margin.

Hab. Streams in the Mahakeshwar Hills, Bombay Presidency. Mus. Cuming.

March 28.—Dr. Gray, Vice-President, in the Chair.

Mr. Gould exhibited male and female specimens of a very rare English Duck, described in 1847 by Mr. Bartlett, under the name of *Fuligula ferinoïdes*. The specimens exhibited were lent to Mr. Gould by M. Van den Bergh, of Rotterdam. Mr. Gould mentioned, that only three instances of the occurrence of the bird in England are on record; one of the specimens is in the collection of J. H. Gurney, another in that of Mr. Doubleday, of Epping, and the third in the museum of the late Earl of Derby, at Liverpool.

CHARACTERS OF SOME NEW OR IMPERFECTLY-DESCRIBED SPECIES OF TANAGERS.

BY PHILIP LUTLEY SCLATER, M.A., F.Z.S.

I have been collecting Tanagers for some time, with the view of ultimately attempting a monograph of the family. But the forms in many of the genera are so closely allied, and the limits of the family itself at present so unsettled, that a larger collection of species, and a much greater familiarity with the subject-matter than I have yet had time to acquire, are requisite before such a monograph can be satisfactorily completed. Puzzling indeed to ornithologists would seem the question, "What is a Tanager?" as puzzling perhaps as to political economists Sir Robert Peel's celebrated poser, "What is a pound?" My ideas on this point, that is, I mean, as to the position and extent of the family or subfamily of Tanagers, coincide, I believe, nearly with those of Mr. G. R. Gray.

A Tanager I consider to be a *dentirostral* Finch—to be distinguished from other more typical *Fringillidæ* by the presence of one or more teeth or notches in the upper mandible (sometimes further developing themselves into serrations, as in certain species of *Euphonia* and *Tachyphonus*), and the culmen being always more or less inflexed, never straight. The colours of the group are generally very brilliant. They

feed on ripe fruit, some on insects, and perhaps in habits rather resemble *Sylviadæ* than true *Fringillidæ*.

With these views, I keep among the Tanagers the *Pityli* and *Saltatores*, excluded therefrom by certain modern systematists, and retained among the *Fringillidæ*, while the whole of what may be termed the more typical portion of the group is removed far away to the neighbourhood of the *Sylvicolinæ*.

Now I think it will be impossible to settle these, and other families belonging to the South American Fauna, in a really satisfactory way, until we know much more than we do at present of the habits and customs of the animals of that vast continent. Unfortunately those who have hitherto written upon the ornithology of that country have in general had too little previous *scientific* knowledge of the subject. Not, of course, that this makes them less accurate observers of facts, but only less likely to hit upon the right facts to be observed. A person previously well acquainted with the varied forms of South American ornithology by study of the European collections, so as to know what points required looking up, would, I have little doubt, be in a much more favourable condition for observing these animals in their native haunts, and thereby solving many of those doubts which at present so perplex the student of natural history. As, however, we may perhaps have to wait some time before a determination of the question "What is a Tanager?" can be arrived at in this manner, I propose adopting as provisional limits for the family or subfamily, nearly those given by Mr. G. R. Gray in his 'Genera of Birds,' excluding only the genera *Pipilo*, *Embernagra*, and *Emberizoides*, which appear to me to go better with *Zonotrichia* and its allied forms. To show the arrangement I contemplate, I have formed a list* of the genera and species, which may perhaps be useful for collectors to mark off their duplicates or desiderata; though, as a mere catalogue of names, it is, of course, of no scientific value. Some of the many lately-formed genera now used, I may hereafter find occasion to consolidate, the principle of subdivision having been carried to great lengths in this as in other families.

My present list contains the names of 222 species, though I have no doubt that many more remain to be discovered. These are all believed to be *real*, not *nominal* species; indeed I have myself seen specimens of nearly the whole of them, and the ten or twelve I have not personally examined I believe rest on good authority. The names used are many of them taken from Bonaparte's 'Conspectus,' his "Note sur les Tanagras" in the 'Rev. et Mag. de Zool.' for 1851, the 'Museum Heineanum' of Cabanis, and my own papers in Sir William Jardine's 'Contributions.'

The Tanagers are essentially a South American family. Out of the whole 222 species, 193 are from the continent south of the Isthmus of Panama, and the rest mostly either from Central America or Southern Mexico. Three or four only are peculiar to certain of the West Indian islands, and three only, well-known members of the genus *Pyrranga*, extend as summer migrants into the United States of

* Tanagarum Catalogus Specificus. Auctore Philippi Lutley Sclater. Basingstoke, 1854. 8vo. 16 pp.

North America. Through South America they range down to the Rio de la Plata, but on the western coast I am not aware that they have been observed nearly so far south. M. d'Orbigny met with but one species* at all on the occidental slope of the Andes; Tschudi mentions but three or four as occurring in the vicinity of Lima, on the coast-region of Peru.

Subjoined are the specific characters of five species occurring in my list, of which accurate descriptions have not yet been published.

1. ARREMON AXILLARIS, Sclater. *A. supra olivaceo-viridis; capite atro; superciliis productis albis; vitta verticali et cervice postica cinereis: subtus niveus, lateribus cinerascentibus; macula utrinque cervicali vittam quasi imperfectam formante, mentoque summo atris; remigibus reatricibusque nigricantibus: tectricibus alarum majoribus flavo-olivaceis, minoribus et axillis læte flavis: mandibula superiore nigra, inferiore flava: pedibus clare brunneis.*

Long. tota 5·2, alæ 3·0, caudæ 2·0 poll. Angl.

Avis junior. Semitorque collari vix conspicuo.

Hab. In Nova Grenada.

Obs. Species *Arremoni semitorquato* maxime affinis, sed hujus axillis olivaceis, illius lætissime flavis.

2. RAMPHOCELUS DORSALIS, Bp. MS. ♂ *Coccineus: dorso medio obscurius coccineo: alis caudaque nigris: rostro nigro, mandibula inferiore basi læte alba.*

♀ *Fusco-brunnea: alis caudaque nigricantibus: uropygio et ventre toto erubescens: rostro brunneo.*

Long. tota 7·0, alæ 3·2, caudæ 3·2.

Hab. In imp. Brasiliensi.

Obs. *R. brazilio* maxime affinis at dorso medio obscurius coccineo.

I should hardly have ventured to have separated this species from *R. brazilio*, from which it only differs, so far as I can make out, in the patch of darker colouring in the middle of the back; but as the Prince Charles Bonaparte has done so, and his MS. name has attained wide circulation on the MM. Verreaux's labels, I think it best to give a published description of the grounds of the alleged specific difference. However, M. Jules Verreaux,—a good authority,—considers the two species truly distinct, and has assured me, if I recollect right, that he has seen and shot them both frequently at Rio and Pernambuco.

3. BUTHRAUPIS CHLORONOTA, Sclater. *B. supra viridis; pileo cæruleo: alis caudaque nigris, illarum tectricibus minoribus cæruleis; majoribus et secundariis viridi limbatis: subtus flavus, crisso saturatiore: gutture toto atro: rostro pedibusque nigris.*

* The *Tunagra striata*, Gm., in the ravines of Palca in Peru, 18° S.L. M. d'Orbigny attributes a wide range to this species, which he says occurs besides in the Banda Oriental, near Monte Video, at Buenos Ayres, near La Paz, and in the provinces of Yungas, Sicasica, Cochambamba, Valle Grande, and Chiquisaca in Bolivia. (Voy. p. 272.) But, *quære*, does he not confound with *T. striata*, Tschudi's *T. frugilegus*?

Long. tota 8·8, alæ 4·6, caudæ 3·8.

Hab. In republ. Equatoriana.

Obs. Affinis *B. eximia*, sed major, dorso toto viridi nec uropygio cæruleo.

I have seen only one specimen of this species, which was received by the Frères Verreaux of Paris from Écuador. It is closely allied to *B. eximia*, but is larger in all its dimensions, nearly equalling in size *B. cucullata*. Its distinguishing character is the uniform green back, whence I have named it *chloronota*. I have examined multitudes of *B. eximia*, and invariably found the uropygium blue.

4. EUPHONIA CONCINNA, Slater.

E. hirundinacea, Bp. Rev. et Mag. de Zool. 1851, p. 156?—

E. affinis, Less. Rev. Zool. 1842, p. 175?

E. supra nigro-violacea valde purpurascens; pileo summo flavo: infra gutture nigro-violaceo; abdomine aurantio-flavo: cauda subtus immaculate nigra.

Long. tota 3·8, alæ 2·2, caudæ 1·4.

Hab. In Nova Grenada.

Obs. *E. chloroticæ* similis, sed cauda subtus immaculata, fronte latius nigro, dignoscenda.

This bird is one of the group so closely affine to *E. chlorotica*, but may be distinguished from all of them (as *E. melanura* from *E. violacea* and its affines) by the absence of white markings on the exterior rectrices. The middle of the belly is also of a brighter orange tint, and the black front is broader than in *E. chlorotica*. A skin of this species, received from the MM. Verreaux, is labelled *E. hirundinacea*, Bp., and it is probably the species referred to by that name in the "Note sur les Tanagras," Rev. et Mag. de Zool. 1851, p. 156. It is not however the true *E. hirundinacea*, Bp. Proc. Zool. Soc. 1837, p. 117; for on examination of the type of that species, which is now in the Derby Museum at Liverpool (labelled *E. hirundinirostris*!), I found it coequal with the bird described by me (Cont. to Orn. 1851, p. 86) as *E. lanirostris*, which again is not the true *lanirostris* of MM. de Lafresnaye and d'Orbigny, but a closely allied species, called in the Baron de Lafresnaye's museum *E. fortirostris*. This must, of course, for the future bear the first proposed specific appellation *hirundinacea*, and will stand as follows:—

5. EUPHONIA HIRUNDINACEA, Bp.

Euphonia hirundinacea, Bp. Proc. Zool. Soc. 1837, p. 117.—*E.*

lanirostris, Slater, Cont. to Orn. 1851, p. 86.—*E. hirundini-*

rostris, Bp. in Mus. Derb.—*E. fortirostris*, Lafr. in mus. suo.

E. æneo-nigra: capite summo antico et corpore toto subtus flavis: rectricibus 2 utrinque extimis late albo intus notatis: rostro et pedibus nigris.

Long. tota 4·5, alæ 2·5, caudæ 1·5.

Hab. In Guatimala (*Bp.*); Chiriqué in Veragua (*Kellett* in Mus. Brit.); Nova Grenada?

Obs. *E. violacæ* similis, sed æneo-nigra nec purpurascens: rostro robustiore.

BOTANICAL SOCIETY OF EDINBURGH.

June 14, 1855.—Professor Balfour, President, in the Chair.

Professor Balfour stated that *Pontederia elongata* had been cultivated in the Botanic Garden of Edinburgh, and distributed under that name. It seems to be only a variety of *P. crassipes*, produced by being grown in soil in place of water. The effect of this treatment is to cause the inflated petioles to elongate and lose their globular form. When the plants are put into deep water so as to float, the roots being unable to reach the soil, they assume the proper form of *P. crassipes*.

The following papers were read :—

1. "Remarks on the *Calamites* and *Sternbergia* of the Carboniferous Epoch," by Dr. Fleming.

Dr. Fleming arrived at the following conclusions :—1. That many species have the original matter, now forming a thin film of coal, smooth on the outside, or not exhibiting externally any traces of joints or longitudinal ribs. 2. From the inside of their woody cylinders, now converted into coal, diaphragms proceeded at regular, but occasionally at irregular, intervals, dividing the inside of the hollow stem into a series of chambers.

These partitions appear to have possessed a very loose texture towards the centre, but become more dense in substance towards their junction with the stem, and usually leave traces of coaly matter at the sides. The jointed character of the casts of the inside, in general all that is noticed by the geologist, is thus referable to the dissepiments, and cannot be regarded as resembling the jointing of a *Calamus*. 3. The inside of the woody cylinder, although smooth on the outside, was grooved longitudinally in the spaces between the partitions or on the walls of the chambers, and hence the rubbed surfaces of the casts. 4. The stem, unlike *Stigmaria* and *Lepidodendron*, had no woody axis, nor dense medullary sheath.

The author next exhibited specimens of *Sternbergia*, displaying, like the Calamite, the external cylinder of coal with a smooth surface, and giving no indication of the internal arrangements. The inside exhibited diaphragms having the same origin as in the Calamite, but less regularly disposed, frequently wanting, and giving to the surface of the cast, not a distinctly jointed, but a transversely crumpled appearance. He concluded, by stating that, from the smooth surface, and thickness of the coaly matter into which the plant had been converted, joined to its independent or detached condition in the rocks, it could not be regarded as the remains of a discoid pith, but, like the Calamite, as a plant which had a hollow stalk, the cavity divided into chambers by transverse partitions, the remains of which give to the casts their characteristic appearance.

2. "On the Dyeing Properties of Lichens," by Dr. W. Lauder Lindsay.

In this paper the author endeavours to direct public attention spe-

cially to the two following facts, viz. First—that, in our own country, many native Lichens, which grow more or less abundantly, might, with advantage and œconomy, be substituted for the somewhat expensive and scarce foreign Roccellas and other dye-Lichens usually employed in the manufacture of orchil, cudbear and litmus; and, secondly—that, in our colonies, and foreign countries to which we have access, species valuable as dye-Lichens probably grow in abundance—might be collected and transported easily and cheaply—and thus become important and lucrative articles of commerce.

3. “On *Diatomaceæ* found in a Sub-fossil state in Dumfriesshire,” by Robert Harkness, Professor of Geology, Queen’s College, Cork.

In this paper, the author remarked:—“While examining the boulder deposits which occur on the northern shore of the Solway Frith last summer, my attention was directed to a locality about a mile west of the mouth of the river Annan, where there is an interesting association of indurated gravel beds, hill deposits, and peat-bog, overlaid by the vegetable soil of the district. The boulder gravel, which here is the lowest deposit exposed, consists of the ordinary Silurian sandstone, mixed with the carboniferous grits, and a few fragments of the Bunter sandstone of the neighbourhood. It had a hardened nature, and in this respect bore considerable affinity to many conglomerates. Above this bed of indurated boulder gravel there is seen a silty deposit, which consists of beds of fine drab-coloured sandy clay, having vegetable remains scattered through the mass. These vegetable remains, when in such a condition that they can be recognised, are, for the most part, fragments of *Equiseta*. The contents of this silty deposit are, however, not confined to such organisms as ordinary swampy vegetation. On submitting portions of the silt to microscopic examination this substance is found to afford many species of *Diatomaceæ*, associated together in an interesting manner. Professor Gregory states that the following forms of Diatoms occur:—

| | |
|--------------------------------------|------------------------------|
| Epithemia Hyndmanni. | Pinnularia major. |
| Cymbella Scotica. | — viridis. |
| — maculata. | — acuta. |
| Coscinodiscus radiatus. | — tenuis (<i>Gregory</i>). |
| Cyclotella operculata. | Gomphonema tenellum. |
| — Kutzingiana. | Doryphora amphiceros (fine). |
| Campylodiscus cribrus (?). | Synedra radians. |
| Tryblionella acuminata. | Nitzschia (sp.?). |
| — punctata. | Grammatophora marina. |
| — marginata. | Melosira sulcata. |
| Surirella minuta. | — distans. |
| — nobilis (or biseriata?). | Fragilaria virescens. |
| Navicula didyma. | Odontidium mesodon. |
| — ovalis. | Meridion circulare. |
| — rhomboides var (<i>Gregory</i>). | Achnanthidium lanceolatum. |
| — varians (<i>Gregory</i>). | |

This association of marine and freshwater forms indicates the occurrence of these forms in the
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currence of conditions of an estuary nature, and leads to the inference that the circumstance under which the silt was deposited approached such as now prevails at the mouths of rivers.

“The occurrence of marine forms of Diatoms in silt, puts us in possession of another element, by means of which we are enabled to ascertain the changes which have taken place in the physical geography of the earth. It furnishes us with a means applicable in many instances where other and more perfect organisms have disappeared, the siliceous skeletons of these minute bodies being capable of resisting that agent by means of which the solid coverings of molluscs are dissolved. Many of the raised sea-beaches, now affording no shells, will probably be found to contain Diatoms, which will tell of the conditions under which these raised sea-beaches were originally deposited, and provide us with information concerning the circumstances which operated in the production of strata of this nature.”

Dr. Gregory alluded to the interesting fact that Diatoms had been found by Ehrenberg in all fossiliferous rocks as far down as the Silurian; and that while the higher organisms exhibited striking differences in the rocks of different epochs, there was, in the case of Diatoms, a striking similarity.

4. “Notice of the time of Flowering of certain Trees and Shrubs in the Royal Botanic Garden during the past month,” by Mr. M^cNab.

5. “Notes on the Effects of last winter upon Plants in the Royal Botanic Garden, Belfast,” by Dr. Dickie, Professor of Zoology and Botany, Queen’s College, Belfast.

The lowest point to which the thermometer fell during the month of February 1855 was on the 15th, viz. 13° F. In 1845, on March 5th, the thermometer in the Botanic Garden indicated 10° F., lower, than in 1855. The injury to the plants, however, in 1855, was greater, because in February last a generally low temperature, with east and north-east winds, prevailed during two weeks.

6. “Account of the Origin and of some of the Contents of the Museum of Economic Botany attached to the Royal Botanic Garden of Edinburgh,” by Professor Balfour.

MISCELLANEOUS.

On the Organization of the Pedicellate Glands of the Leaf of Drosera rotundifolia. By M. A. TRÉCUL.

THERE are some plants certain organs of which are capable of executing very remarkable movements under the influence of a mechanical excitement. Amongst these are the leaves of *Mimosa pudica* and *sensitiva*, and of *Dionæa muscipula*, the stamens of *Berberis*, &c. The *Drosera* has been classed with the plants which possess this singular property. It is generally supposed that as soon as a fly or other insect, attracted by the viscous juice secreted by the